



**NORTH DAKOTA**  
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION  
Gold Seal Center, 918 E. Divide Ave.  
Bismarck, ND 58501-1947  
701.328.5200 (fax)  
www.ndhealth.gov



MEMO TO : North Dakota Radioactive Material Well Logging Licensees

FROM : Terry L. O'Clair, P.E.  
Director  
Division of Air Quality *TLO*

RE : NRC Information Notice 2007-33: Exposures to Members of the Public Caused by Inadequate Controls over Well Logging Sources

DATE : November 13, 2007

The purpose of this memorandum is to forward to you the U.S. Nuclear Regulatory Commission's Information Notice 2007-33. Information Notice 2007-33 is to alert licensees to recent events resulting in exposures to members of the public after sealed sources of licensed material were not properly stored in shielded containers before or after use.

The Information Notice does not convey new requirements; its intent is informational only. Please review the Information Notice for applicability to your operation. A reply on your part is not necessary.

CS:csc

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF FEDERAL AND STATE MATERIALS  
AND ENVIRONMENTAL MANAGEMENT PROGRAMS  
WASHINGTON, D.C. 20555-0001

September 28, 2007

NRC INFORMATION NOTICE 2007-33: EXPOSURES TO MEMBERS OF THE  
PUBLIC CAUSED BY INADEQUATE  
CONTROLS OVER WELL LOGGING  
SOURCES

**ADDRESSEES**

All U.S. Nuclear Regulatory Commission (NRC) Well Logging Licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.

**PURPOSE**

The NRC is issuing this Information Notice (IN) to alert addressees to recent events resulting in exposures to members of the public after sealed sources of licensed material were not properly stored in shielded containers before or after use.

Recipients should review the information contained in this IN for applicability to their facilities, and consider actions, as appropriate. However, recommendations contained in this IN are not new NRC requirements; therefore, no specific action nor written response is required. NRC is providing this IN to the Agreement States for their information, and for distribution to their well logging licensees, as appropriate.

**DESCRIPTION OF CIRCUMSTANCES**

During February 2007, a licensee of the Agreement State of Oklahoma lost control of a well logging sealed source while attempting to load it into a shielded storage container on a truck at the licensee's facility. The 700 millicurie (26 GBq) cesium-137 sealed source was removed from a storage pit with a handling tool and carried across a driveway with the tool for installation into the shielded container mounted on the truck. The source was not fully secured in the container, so when the work crew left in the truck, the source was left lying in the gravel driveway of the shop.

Later that morning, a licensee employee who was not trained as a radiation worker, noticed what he considered to be a specialized bolt lying on the ground. The employee picked up the source and put it into his jacket pocket. The jacket was worn for about four hours that day then was hung in a closet in the shop overnight with the source still in it. The source was identified as missing the next morning and was retrieved.

A chromosomal analysis of a blood sample of the worker indicated a possible exposure of 10 rads (0.1 Gy) averaged whole body dose. Another worker who was near the first

**ML072700212**

worker for some time also received an exposure in excess of the 100 millirem (1 mSv) limit to a member of the public (10 CFR 20.1301).

The causes of the incident included the following:

1. Failure to conduct a radiation survey to identify the location of the source after transfer to the truck as required by regulatory requirements.
2. Source handling tool design did not positively secure the source into the tool.
3. The shielded container design did not positively secure the source into the container.
4. Inadequate lighting in the driveway. (The source was transferred to the truck before sunrise.)
5. Failure to train workers to identify unshielded well logging sources.

A similar event occurred during January 2006 in New Mexico when a 2.5 curie (93 GBq) cesium-137 source was lost during transfer from a logging tool to a shielded container on a truck. The licensee departed the work site unaware that the source remained behind. Members of the public received exposures less than the regulatory limit before the licensee identified the loss and retrieved the source several hours later. Failure to conduct a survey was again identified as the principal cause of the incident.

## DISCUSSION

While all of the identified failures played a role in each of the two events, the principal cause was failure to conduct surveys to ensure the location of sealed sources. Licensees should ensure that workers conduct radiation surveys to ascertain the location of each source after movement. Surveys of shielded containers should be made to ensure that sources are within them after loading. Such surveys are required to be included in operating and emergency procedures described in 10 CFR 39.63 or equivalent Agreement State regulations.

The NRC has recently issued a wall poster to help identify radioactive scrap. This poster can be used to familiarize workers with the appearance of unshielded sources of radioactive material. Copies of the poster (NUREG/BR-0108, Rev. 1) can be obtained by contacting the U.S. Nuclear Regulatory Commission, Office of Administration, Mail Distribution and Messenger Team, Washington, DC 20555, or E-mail [distribution@nrc.gov](mailto:distribution@nrc.gov). The poster can also be viewed and downloaded at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0108>. The poster is available in both English and Spanish.

## CONTACTS

This IN requires no specific action nor written response. If you have any questions about the information in this notice, please contact the technical contact below.

***/RA/ by Robert J. Lewis Acting for/***

Janet R. Schlueter, Director  
Division of Materials Safety  
and State Agreements  
Office of Federal and State Materials  
and Environmental Management Programs

Technical Contact(s):

Charles L. Cain, RIV  
Phone: 817-860-8186  
E-mail: [clc@nrc.gov](mailto:clc@nrc.gov)

J. Bruce Carrico, FSME  
Phone: 301-415-7826  
E-mail: [jbc@nrc.gov](mailto:jbc@nrc.gov)

Enclosure: List of Recently Issued NMSS/FSME  
Generic Communications

DISTRIBUTION:  
DMSSA r/f

### ML072700212

OFC	FSME/DMSSA	FSME/DMSSA	FSME/DMSSA	FSME/DMSSA
NAME	JBCarrico	DWhite	AMcIntosh	RLewis
DATE	9/27/07	9/27/07	9/07/07	9 /28/07
OFC	RIV	FSME/DMSSA		
NAME	CCain	JSchlueter		
DATE	9/28 /07	9/28 /07		

Recently Issued FSME/NMSS Generic Communications			
Date	GC No.	Subject	Addressees
02/02/07	IN-07-03	Reportable Medical Events Involving Patients Receiving Dosages of Sodium Iodide Iodine-131 less than the Prescribed Dosage Because of Capsules Remaining in Vials after Administration	All U.S. Nuclear Regulatory Commission medical use licensees and NRC Master Materials Licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.
02/28/07	IN-07-08	Potential Vulnerabilities of Time-reliant Computer-based Systems Due to Change in Daylight Saving Time Dates	All U. S. Nuclear Regulatory Commission licensees and all Agreement State Radiation Control Program Directors and State Liaison Officers.
03/13/07	IN-07-10	Yttrium-90 Theraspheres® and Sirspheres® Impurities	All U.S. Nuclear Regulatory Commission (NRC) Medical Licensees and NRC Master Materials Licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.
04/04/07	IN-07-13	Use of As-Found Conditions to Evaluate Criticality-related Process Upsets at Fuel Cycle Facilities	All licensees authorized to possess a critical mass of special nuclear material.
05/02/07	IN-07-16	Common Violations of the Increased Controls Requirements and Related Guidance Documents	All licensees who are implementing the U.S. Nuclear Regulatory Commission (NRC) Order Imposing Increased Controls (EA-05-090), issued November 14, 2005 and December 22, 2005.
05/21/07	IN-07-19	Fire Protection Equipment Recalls and Counterfeit Notices	All holders of operating licenses for nuclear power reactors and fuel cycle facilities; except those licensees for reactors that have permanently ceased operations and who have certified that fuel has been permanently removed from the reactor vessel; and except those licensees for decommissioned fuel cycle facilities.
06/11/07	IN-07-20	Use of Blank Ammunition	All power reactors, Category I fuel cycle facilities, independent spent fuel storage installations, conversion facility, and gaseous diffusion plants.

Date	GC No.	Subject	Addressees
07/19/07	IN-07-25	Suggestions from the Advisory Committee on the Medical Use of Isotopes For Consideration to Improve Compliance With Sodium Iodide I-131 Written Directive Requirements in 10 CFR 35.40 and Supervision Requirements in 10 CFR 35.27	All U.S. Nuclear Regulatory Commission (NRC) medical-use licensees and NRC Master Materials Licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.
08/08/07	IN-07-23	Inadvertent Discharge of Halon 1301 Fire-suppression System from Incorrect and/or Out-of-date Procedures	All holders of operating licenses for nuclear power reactors, except those who have permanently ended operations and have certified that fuel has been permanently removed from the reactor vessel. All holders of licenses for fuel cycle facilities.
08/13/07	IN-07-26	Combustibility of Epoxy Floor Coatings at Commercial Nuclear Power Plants	All holders of operating licenses for nuclear power reactors and fuel cycle facilities except licensees for reactors that have permanently ceased operations and who have certified that fuel has been permanently removed from the reactor vessel.
09/13/07	IN-07-30	Radiological Controls Create Criticality Safety Accident Scenario for Fissile Solution Container Transport at Fuel Cycle Facility	All licensees authorized to possess a critical mass of special nuclear material.
03/01/07	RIS-07-03	Ionizing Radiation Warning Symbol	All U.S. Nuclear Regulatory Commission licensees and certificate holders. All Radiation Control Program Directors and State Liaison Officers
03/09/07	RIS-07-04	Personally Identifiable Information Submitted to the U.S. Nuclear Regulatory Commission	All holders of operating licenses for nuclear power reactors and holders of and applicants for certificates for reactor designs. All licensees, certificate holders, applicants, and other entities subject to regulation by the U.S. Nuclear Regulatory Commission (NRC) of the use of source, byproduct, and special nuclear material
03/20/07	RIS-07-05	Status and Plans for Implementation of NRC Regulatory Authority for Certain Naturally-occurring and Accelerator-produced Radioactive Material	All NRC materials licensees, Radiation Control Program Directors, State Liaison Officers, and NRC's Advisory Committee on the Medical Uses of Isotopes
04/05/07	RIS-07-07	Clarification of Increased Controls for Licensees That Possess Collocated Radioactive Material During Transportation Activities	All U.S. Nuclear Regulatory Commission (NRC) licensees issued NRC's Order Imposing Increased Controls and all Radiation Control Program Directors and State Liaison Officers

Date	GC No.	Subject	Addressees
05/04/07	RIS-07-09	Examples of Recurring Requests for Additional Information (RAIs) for 10 CFR Part 71 and 72 Applications	All holders of, and applicants for, a: (1) 10 CFR Part 71 certificate of compliance (CoC) for a radioactive material transportation package; (2) 10 CFR Part 72 CoC for a spent fuel storage cask; and (3) 10 CFR Part 72 specific license for an independent spent fuel storage installation (ISFSI).
06/27/07	RIS-06-27, Suppl. 1	Availability of NRC 313A Series of Forms and Guidance for Their Completion	All U.S. Nuclear Regulatory Commission (NRC) medical-use licensees and NRC Master Materials licensees. All Radiation Control Program Directors and State Liaison Officers.
05/15/07	RIS-07-10	Subscriptions To New List Server For Automatic Notifications Of Medical-Related Generic Communications, <i>Federal Register</i> Notices And Newsletters	All U.S. Nuclear Regulatory Commission (NRC) medical-use licensees and NRC Master Materials licensees. All Radiation Control Program Directors and State Liaison Officers.
08/31/07	RIS-07-13	Verification of the Authenticity of Materials Possession Licenses	All U.S. Nuclear Regulatory Commission materials licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.
09/07/07	RIS-07-18	Data for Updating the Interim Inventory of Radioactive Sources	All U.S. Nuclear Regulatory Commission (NRC) Part 40, Part 50, Part 70, Part 72, and Part 76 licensees and certificate holders who are authorized to possess sources of radioactive material at the Category "3.5" (as defined below) activity or higher.

Note: A full listing of generic communications may be viewed at the NRC public website at the following address:  
<http://www.nrc.gov/Electronic Reading Room/Document Collections/Generic Communications>